

REMARKS

Summary of Amendments and Status of Claims

Claims 4, 5, 20 and 25 have been substantively amended in response to the Office action.

As the amendments to claims 5 and 20 have incorporated the limitations of claim 8 into each of the two claims, claim 8 has been canceled.

Furthermore, claim 16 has been amended so as not to depend from a canceled claim 8.

Claims 4, 5, 12, 13, 16, 20 and 25-29 are thus pending the Examiner's further consideration on the merits, as requested in the RCE that accompanies this paper.

Claim Rejections – 35 U.S.C. § 112

The pending claims were rejected under 35 U.S.C. § 112 as failing to comply with the written description requirement. In particular, the Office alleges,

Independent claims 4 and 25 now limit to a tool shank portion diameter of 3.175 or less, but the original disclosure [0005] calls for slots made from [a] tool having the claimed diameter.

It is respectfully pointed out that on the contrary, claims 4 and 25 commonly recite, "a machining tool shank having a blade portion of 3.175 mm or less diameter." Hence, claims 4 and 25 do not limit the diameter of the router shank portion, which is indicated by reference numeral 11 in Fig. 1 on the drawing sheet included in the present specification; rather, claims 4 and 25 limit the diameter of the router cutting-bit, or "blade" portion, which is indicated by reference numeral 12 in Fig. 1.

Meanwhile, the Office pointed out that claims 5 and 20 reciting a "base material" of 3.175 mm or less (in claim 5, but actually 0.3 mm or less in claim 20) is incorrect. This deficiency has been redressed by amending claim 5 to recite "a cemented-carbide base material of 3.175 mm or less blade-portion diameter," and to amend claim 20 to recite "a cemented-carbide base material of 0.3 mm or less blade-portion diameter."

Accordingly, it is believed that the rejections under 35 U.S.C. § 112 have been fully addressed and overcome. Nevertheless, as to the issue of whether the inventors at the time the instant application was filed had possession of the invention as claimed in independent claims 4, 5, 20 and 25—of router and miniature drill bits having a blade portion of 3.175 mm or less diameter (claims 4, 5 and 25) or 0.3 mm or less

(claim 25), it is noted that any number of reference works in the circuit-board processing art describe what the art-understood limits that "or less" here implies.

For example, *Tool and Manufacturing Engineers' Handbook*, "Volume I, Machining," Fourth Edition, Thomas J. Drozda and Charles Wick, eds. (1983) states on page 67 of Chapter 9, "Small-Hole Drills,"

While drills with a diameter of 0.0001" (0.003 mm), flute length of 0.0003" (0.008 mm), and shank diameter of 0.040" (1.02 mm) are the smallest standard size, this firm [the Von Hollen Tool Co.] has drilled holes 0.000025" (0.00064 mm) diam.

Claim Rejections – 35 U.S.C. § 102

Claims 4, 5, 8, 12-13, 16, 20, 25-29 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 5,009,705 to Yoshimura et al.

While the Office-action letter states that it is the Examiner's position that "the claimed stress and roughness is considered inherent to the material used," it is respectfully pointed out that a thin-film coating in accordance with the present invention as claimed is a hard carbon film (amorphous structure), not a crystalline film. This distinction is detailed in paragraph [0028] of the specification as filed.

Although the Office alleges, "*Yoshimura et al.* discloses the claimed coatings (Table 5)," the coatings disclosed *Yoshimura et al.* are of crystalline synthetic diamond, or of compounds of titanium, which by the present amendment has been eliminated as a possible coating constituent of Applicant's claimed coatings. Thus, *Yoshimura et al.* clearly cannot anticipate thin-film coatings of the evenness and smoothness of the present invention.

Accordingly, it is respectfully submitted *Yoshimura et al.* fails to meet the limitations of independent claims 4, 5, 20 and 25, and thus be extension, of the pending dependent claims.

Conclusion

Accordingly, Applicant courteously urges that this application is in condition for allowance. Reconsideration and withdrawal of the rejections is requested. Favorable action by the Examiner at an early date is solicited.

Respectfully submitted,

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